Claims:

1. A method in a diffractive color system, which color system specifies visual color effects, target colors, which are formed by mixing together additively two or more diffractively produced primary colors, **characterized** in that in order to specify the target colors contained by the color system, the method comprises at least the following steps

— an application-specific group of primary color candidates is formed, to which group the primary color candidates are selected by using as a main selection criterion the luminance reached with them in application-specific illumination conditions in question,

— in order to produce a specific target color, at least two primary colors are selected from said group of primary color candidates so that said target color is located in the color space on an area, which can be covered by additively mixing together said selected primary colors, and

— a target-color-specific mixing ratio is determined for these selected primary colors, by means of which ratio said target color is achieved in the application-specific illumination conditions by additively mixing the selected primary colors.

2. The method according to claim 1, **characterized** in that the specification of the color system by specifying the target colors is performed to illumination conditions comprising a discrete spectrum by selecting the primary color candidates to correspond to the spectrum features distinguishable in the spectrum of the illumination.

3. The method according to claim 2, **characterized** in that the application-specific group of primary color candidates is formed by selecting the primary color candidates to correspond to the strongest spectral bands or lines of the light emitted by a fluorescent lamp.

4. The method according to claim 3, **characterized** in that the primary color candidates are selected to correspond substantially to the wavelengths of 437 nm, 490 nm, 545 nm and 615 nm.

5. The method according to claim 2, **characterized** in that the application-specific group of primary color candidates is formed by selecting the primary color candidates to correspond to the spectral bands or lines distinguishable in the illumination implemented by means of semiconductor emitters.

6. The method according to claim 1, **characterized** in that for each primary color candidate is designed a diffractive elementary grating formed on the substrate and reproducing said primary color.

7. The method according to claim 6, **characterized** in that in order to reproduce a certain target color, a diffractive basic area unit is further formed on the substrate, which unit is formed from the elementary gratings corresponding to the primary colors selected for said target color.

8. The method according to claim 7, **characterized** in that the mixing ratio of the primary colors selected for said target color in said basic area unit is coded to the area ratios of the elementary gratings corresponding to the primary colors.

9. The method according to claim 7, **characterized** in that in the specification of said primary color mixing ratio the color of the substrate itself or the color of the background visible through the substrate in an application situation is taken into account.

10. The method according to claim 7, **characterized** in that said basic area unit is formed of the elementary gratings as a array-like pixelated structure, in which an individual elementary grating represents an individual pixel.

11. The method according to claim 10, **characterized** in that the dimensions of said basic area unit in all directions along the plane of the substrate are selected to be substantially equal.

12. The method according to claim 7, **characterized** in that said basic area unit is formed of elementary gratings either as a horizontal or a vertical banded pixelated structure.

13. The method according to claim 12, **characterized** in that the dimension of said basic area unit in at least one direction along the plane of the substrate is selected to be substantially greater than the dimensions of the basic area unit in the other directions along the plane of the substrate, a maximum of the dimension of said basic area unit in said one direction being limited only to the dimension of the substrate.

14. A diffractive color system, which color system specifies visual color effects, target colors, which colors are formed by mixing together additively two or more diffractively produced primary colors, **characterized** in that the target colors contained in the color system are specified

— by forming an application-specific group of primary color candidates, to which group the primary color candidates have been selected by using the luminance reached with them in the application-specific illumination conditions in question as a main selection criterion,

— in order to produce a specific target color, at least two primary colors have been selected from said group of primary color candidates in such a manner that said target color is located in the color space on an area, which can be covered by additively mixing together said selected primary colors, in which case

— a target color specific mixing ratio has been determined for the target color selected in this way, by means of which ratio said target color is achieved in application-specific illumination conditions by additively mixing the selected primary colors, and

— information on the primary colors selected to produce said target color and on their mutual mixing ratios is stored in the color system.

15. The color system according to claim 14, **characterized** in that in order to reproduce a specific target color, a diffractive basic area unit is further specified, which unit comprises elementary gratings reproducing the primary colors selected for said target color, the mutual area ratios of which elementary gratings have been selected to correspond to the mixing ratio of the primary colors determined for producing the target color, and in that information on the characteristics of said basic area unit producing the target color in question and the elementary gratings contained in it is stored in a target color-specific manner in the color system.

16. The color system according to claim 14, **characterized** in that the information contained in the color system is presented as a one-dimensional or multi-dimensional color chart.

17. A diffractive component, which comprises at least one diffractive basic area unit formed on the substrate, which is arranged to create a visual color effect, a target color, arranged to additively mix together two or more diffractively produced primary colors, **characterized** in that

- said basic area unit producing the target color comprises at least two different diffractive elementary gratings producing different primary colors to at least one common detection direction, in which case
- the primary colors selected for mixing the target color, produced by said elementary gratings, have been selected from an application-specific group of primary color candidates, which primary color candidates have been selected to said group by using a luminance achieved with them in the application-specific illumination conditions in question as selection criterion, and
- the area ratio of said elementary gratings is further coded to correspond to that mixing ratio of the selected primary colors, which by mixing said primary colors additively forms said target color in the application-specific illumination conditions.

18. The diffractive component according to claim 17, **characterized** in that the primary colors corresponding to the elementary gratings contained in at least one basic area unit contained in the component are selected from a group of primary color candidates, which primary color candidates have been selected to correspond to the spectral features distinguishable in an application-specific illumination comprising a discrete spectrum.

19. The diffractive component according to claim 18, **characterized** in that said primary color candidates are selected to correspond to the strongest spectral bands or lines emitted by a fluorescent lamp.

20. The diffractive component according to claim 19, **characterized** in that the primary color candidates are selected to correspond substantially to the wavelengths of 437 nm, 490 nm, 545 nm and 615 nm.

21. The diffractive component according to claim 18, **characterized** in that said primary color candidates are selected to correspond to the spectral bands or lines distinguishable in an illumination implemented with semiconductor emitters.

22. The diffractive component according to claim 17, **characterized** in that the color of the substrate or the color of the background visible through the substrate in an application situation is taken into account in the determination of the mixing ratio of the primary colors and in the coding of the area ratios of the elementary gratings performed on the basis of the determination.

23. The diffractive component according to claim 17, **characterized** in that said basic area unit producing the target color is formed from the elementary gratings as a array-like pixelated structure, in which an individual elementary grating represents an individual pixel.

24. The diffractive component according to claim 23, **characterized** in that the dimensions of said basic area unit in all directions along the plane of the substrate are selected to be substantially equal.

25. The diffractive component according to claim 17, **characterized** in that said basic area unit producing the target color is formed from elementary gratings either as a horizontal or vertical banded pixelated structure.

26. The diffractive component according to claim 25, **characterized** in that the dimension of said basic area unit in at least one direction along the plane of the substrate is selected to be substantially greater than the dimensions of the basic area unit in the other directions along the plane of the substrate, a maximum of the dimension of said basic area unit in said one direction being limited only to the dimension of the substrate.

27. The diffractive component according to claim 17, **characterized** in that said elementary gratings are implemented as surface grating structures or as buried grating structures.

28. The diffractive component according to claim 17, **characterized** in that the profiles of the gratings of said elementary gratings represent one of the following or their combinations: binary, sine-form or triangle profile of the grating.

29. The diffractive component according to claim 17, **characterized** in that the viewing angles α of the elementary gratings have been arranged to be 30° or 54° in a situation in which the illumination takes place substantially in the direction of the normal of the plane of the substrate.

30. The diffractive component according to claim 17, **characterized** in that said elementary gratings have been formed on the substrate by embossing.

31. The diffractive component according to claim 30, **characterized** in that embossing is performed as a roll-to-roll process or as sheet printing.

32. The diffractive component according to claim 17, **characterized** in that said substrate is formed by one of the following materials or their combination: plastic, paper, paperboard, glass, textile, metal, ceramics, lacquer, paint, printing ink, or other coating.

33. A product containing one or more visual and diffractively produced color effects, **characterized** in that the product comprises one or more diffractive components according to any of the above-presented claims 17 to 32.

34. The product according to claim 33, **characterized** in that the product is packing material.

35. The product according to claim 33, **characterized** in that the product is a printed product.

36. The product according to claim 33, **characterized** in that the product is manufactured of a substantially transparent material.

37. The product according to claim 33, **characterized** in that the basic material of said product functions at the same time as the substrate of said one or more diffractive component.

38. The product according to claim 33, **characterized** in that said one or more diffractive components form a brand or a logo as a one color or multi-colored effect.

39. The product according to claim 33, **characterized** in that said one or more diffractive components form letters, text, an image, a figure or a combination of them as a one color or multi-colored effect.

40. The product according to claim 33, **characterized** in that said one or more diffractive components form a color specimen representing the target color specified by a diffractive color chart.